3 STRUCTURE AND DEFINITION OF THE FOCUS AREA INTEGRATED APPROACH

OST's Focus Area-centered approach ensures program success through extensive working relationships with all parties.

OST accomplishes its mission through the Focus Areas and the cooperation of an array of organizational partners using the best available expertise. These include EM Headquarters, the Office of Science, OST Headquarters and Field staff, DOE Field Offices, site contractors, and the National Laboratories. Outside the EM complex, OST interacts with private industry, academia, other Federal agencies, international agencies and organizations, and other sectors of the science and technology (S&T) community to solve EM's cleanup problems. This extensive network of organizational partners enables OST to leverage resources and mobilize participation to provide fully integrated, technically defensible solutions for cleanup and environmental stewardship at DOE sites.

Working with partners, OST uses a Focus Area-centered approach to implement its program, and to enhance communication and interaction among site end users and S&T program planners at the national level (Figure 3.1). To maximize the effective use of technologies, Focus Areas obtain requirements from, and work with, site end users to ensure that OST activities are planned and conducted to meet site needs, and that innovative solutions are vendor-available to EM users.

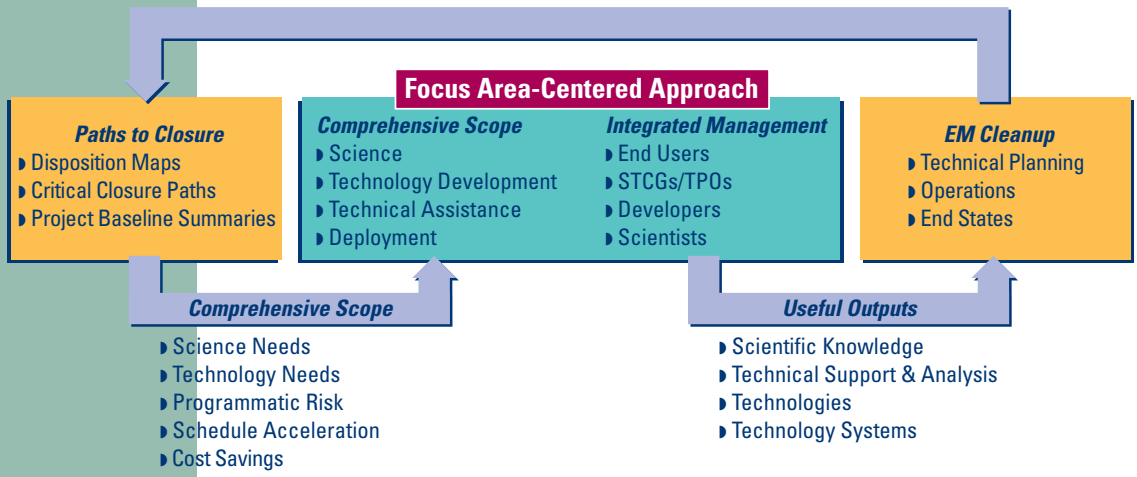

Figure 3.1 - The Focus Area-centered approach is integrated with end users and provides relevant, state-of-the-art, accepted cleanup solutions.

3.1 Organizational Structure

The Focus Area structure manages each OST Program problem area as an integrated investment.

The Federal oversight structure for OST resides with the Assistant Secretary for EM, who directs seven Deputy Assistant Secretary (DAS) Offices at EM Headquarters. These offices develop the national strategy; issue programmatic policies and guidance; ensure that management, safety, and process improvement systems are in place; establish and monitor performance metrics;

communicate lessons learned; and serve as an informed advocate with DOE management, national stakeholders, and Congress.

Within this context, OST Headquarters provides policy, guidance, analysis, review, and oversight in managing the full range of R&D activities. These activities range from basic to applied research, advanced development, implementation and support for deployment, and acceptance of innovative technologies. OST interacts with the Office of Waste Management, the Office of Environmental Restoration, and the Office of Nuclear Material and Facility Stability relative to S&T activities. These offices represent end-user programs for which OST provides technology solutions. The EM end-user programs actively participate in OST activities to ensure that program objectives are aligned with end-user needs, and are communicated, coordinated, integrated, and consistent with DOE and EM programs, policies, and national priorities. OST Headquarters also shapes policy and strategy, formulates the national program budget (with EM-20), and measures Field performance.

OST Headquarters provides policy, guidance, analysis, review, and oversight to all R&D activities.

In addition, OST manages several programs as part of the Focus Areas: EM Science Program (EMSP), Crosscutting Programs (CPs), Technology Acceptance and Support (TAS) Programs, and the National Risk Policy Program, each of which targets particular stages of the technology maturity life cycle.

The EMSP develops a targeted, long-term basic research agenda for environmental programs that will result in transformational or breakthrough approaches for solving EM's cleanup problems. These problems are identified by problem holders at DOE sites in collaboration with Focus Areas.

The EMSP bridges the gap between fundamental research and needs-driven applied technologies.

The CPs target problems common to all Focus Areas. These programs work closely with all Focus Areas to integrate their technologies and avoid duplication.

Crosscutting Programs are:

- ***Robotics***
- ***Industry Programs***
- ***University Programs***
- ***Characterization, Monitoring, and Sensor Technologies***
- ***Efficient Separations and Processing.***

TAS programs facilitate the Focus Areas' acceptance and deployment of innovative technologies. These include:

- **Program information –** Provide systems to collect, access, and communicate information on technology development, deployment, and performance
- **Review and analysis –** Implement standardized methodologies for technology cost savings and impacts; and facilitate independent, external reviews of OST programs and technologies
- **Regulatory and site acceptance –** Facilitate state regulatory cooperation to encourage and promote acceptance of innovative technologies
- **International technology coordination –** Identify and evaluate foreign technologies that meet EM cleanup needs, and facilitate technology transfer and access to expertise

- **Safety, health, and environmental support and coordination –** Guide the implementation of integrated safety management principles to ensure worker safety
- **Quality assurance –** Ensure the quality of information on innovative technologies released to the public, and validate the quality of data from sources at Headquarters and in the Field.

The National Risk Policy Program develops and implements national policies, practices, guidance, tools, support, and training for credible, risk-based environmental decisions. These protect human health and the environment, while ensuring stakeholder participation. Focus Areas help EM's technology end users identify scientific breakthroughs and innovative technologies that will help accomplish the program objective of reducing risk to workers, the public, and the environment.

The safety and health of workers and the public is a major Focus Area concern. A key criterion in choosing a successful technology is risk reduction to workers and the public. OST ensures that technology development activities conform to the EM Functions, Responsibilities, and Authorities Manual (FRAM), as this ensures integrated safety management for all EM activities.

Appendix C provides a more detailed discussion of OST's organizational elements, as well as responsibilities and relationships internal and external to the Focus Areas.

Focus Areas, managed by Field Offices, ensure an integrated approach to deliver cleanup solutions to end users.

Field organizations implement guidance and manage all activities associated with the entire technology development life cycle. The Focus Area, located at the center of this structure, manages the day-to-day, hands-on development and delivery of technology solutions to EM end users. Focus Areas are dedicated to each of EM's major remediation and waste management problems. The Focus Area structure is integral to the entire OST Program, for it manages each problem area and all activities, from basic science through technology deployment, as an integrated investment. Each Focus Area coordinates with OST Headquarters to identify, expedite, and deliver solutions to end users.

To support the varied and complex problems involved in EM cleanup and remediation efforts, OST obtains the very best technical knowledge and expertise available. It identifies partners from the DOE National Laboratories, DOE site contractors, private industry, and universities to participate in developing and deploying technologies that solve EM problems. OST strives to maintain a balanced program, and encourages collaborative working relationships among researchers, to gather the best skills and capabilities to solve EM problems. In pursuit of these goals, OST also draws upon the resources and capabilities of other government agencies, including other DOE organizations, and other Federal, state, and international agencies.

3.2 The Focus Area-Centered Approach

Focus Area implement the OST mission and strategies.

The Focus Area is the primary management entity for implementing the OST mission and strategies. This concept, introduced in 1994 as a new approach to EM research, technology development, and deployment, ensures that OST programs remain focused on EM's most pressing environmental management needs. Each Focus Area addresses one major remediation or waste management problem within the EM complex (see Figure 3.2).

In collaboration with its organizational partners, each Focus Area provides responsive, technically defensible solutions for cleanup and environmental stewardship at DOE sites. Focus Areas use research and technology development programs to develop, test, demonstrate, and provide technical assistance to deploy solutions for EM's major environmental problem areas. They also evaluate and test commercially available technology that may meet EM needs. Each Focus Area works with the vendor community to transfer promising research to potential vendors as they prepare technology-based products and services for the EM site market, and links vendors of advantageous technologies with users at EM sites.

Problem Areas	Focus Areas (Lead Location)
Mixed, Low-level, and Transuranic (TRU) Waste	Mixed Waste FA (Idaho)
High Level Waste	Tanks FA (Hanford)
Environmental Restoration	Subsurface Contaminants FA (Savannah River)
Deactivation and Decommissioning	Deactivation and Decommissioning FA (FETC)
Plutonium and Nuclear Material	Plutonium and Nuclear Material FA (Idaho)

Figure 3.2 - Focus Areas address DOE's key problem areas.

In close coordination with EM line programs, the Focus Area plans, manages, and executes a coordinated and integrated national program to provide innovative technical solutions to end users across the DOE complex. Each Focus Area develops, tests, and validates appropriate technologies and helps deploy those that have successfully reduced cost, schedule, and risk. Key attributes of this approach are:

- **Internal Focus Area Integration -** EMSP, CPs, industry, university, international, risk, technology development, and accelerated deployment initiatives are leveraged and implemented to provide comprehensive solutions for identified user needs. This also ensures that technology acceptance and integration considerations are properly addressed.
- **EM Integration -** Integration calls for the collaboration and involvement of end users in Focus Area decision-making and management to ensure that OST program/project priorities and

funding are integrated with end-user project requirements for cleanup (e.g., schedule, regulatory acceptance). End users play a primary role in identifying and prioritizing projects and needs during the planning and budget processes, and ultimately decide whether or not to implement technologies into their projects and programs. Those involved are responsive to Focus Area User Steering Committees, and assist end users in identifying relevant Focus Area technologies.

- **Other Coordination –** This consists of coordinating with site teams, major program offices and organizations, and Focus Area activities. OST activities are also coordinated with external review groups and agencies, and regulatory entities at the national, state, and local levels.

- **Technical Assistance –** Technical assistance is provided to end users to help: identify and implement alternative cleanup approaches and technologies; identify vendors who can supply alternative cleanup approaches and technologies to the EM market; evaluate technical alternatives to privatization projects or technical backup for privatization initiatives; review and select site-appropriate technologies, even those not necessarily developed by OST; solve immediate operational issues; facilitate deployment of new technologies; define problems; improve efficiencies; and provide new technology transfer through the use of quality approaches. To this end, Focus Areas may designate lead laboratories (discussed in Section 3.4).

- **Technical Expertise –** The best talent and technical expertise in DOE, other Federal agencies, industry, universities, and other national and international S&T organizations is leveraged to develop sound technical solutions to EM problems.

- **Facilitate Information Exchange –** Communication and exchange of credible information are provided and facilitated through the use of OST and EM information systems and data repositories.

Focus Area-Centered Benefits:

- ***Almost unlimited access to cutting-edge scientific and technological data and developments***
- ***Extensive collaboration with developers and end users of these evolving technologies***
- ***Access to a vast technical assistance community with members to assist in problem solving and question answering***
- ***Easy communication and information exchange, which benefits everyone.***

3.3 From End-User Needs to Solutions

Challenges to EM:

- ***Aggressive schedules***
- ***Regulatory changes***
- ***Life-cycle costs***
- ***Environmental, health, and safety risks.***

The challenges involved in EM's complex cleanup efforts, such as aggressive schedules, regulatory changes, life-cycle costs, and environmental, health, and safety risks, require Focus Areas to understand and proactively respond to end-user needs in ways that have beneficial impacts on cleanup problems and solutions. End users must be able to effectively use OST-provided scientific advancements in the execution of their projects.

To seek effective solutions, end users communicate their problems and needs to their respective Focus Area. The Focus Area responds by identifying potential technologies. Key drivers behind end-user needs are requirements identified in *Paths to Closure*, including Project Baseline Summaries (PBSs).

Information in *Paths to Closure*, waste stream disposition maps, and critical path analyses effectively identify problems for which end-user solutions are targeted.

PBSs provide information on life-cycle cost, schedule, current technical approach, and environmental, safety, and health risks. They also reference Needs and Opportunity Statements, OST Work Packages (WPs), and technologies planned to meet site requirements. Each Focus Area technical program is driven by, and responsive to the end user. Focus Areas work closely with end users to ensure that the S&T aspect of the project mission requirements are met.

Each Focus Area's work scope is linked to PBSs, needs, disposition maps, and site-critical paths. This results in programmatic risk reduction and cost savings.

Based on end-user needs, Focus Areas develop Multi-Year Program Plans (MYPPs) to detail EM's planned investment portfolio. The MYPP integrates all OST activities associated with a problem area, including those performed in the EMSP and the CPs, with EM end-user projects. The MYPP provides an accurate definition of the end-user problem(s) and the full set of planned activities to solve it (them).

Focus Areas use MYPPs to describe problems faced by end users and outline the methodology and procedures to solve them.

The MYPP's technical strategies, scopes, priorities, performance measures, and projected outcomes are developed through collaborative planning efforts of Focus Areas and the end-user community. The MYPP is endorsed by the end-user community through Focus Area End-User Steering Committees, and approved by senior EM management from the Field Offices and Headquarters. OST's planning processes are described further in Section 4.

Identifying end-user needs and planning efforts lead to OST's ultimate goals: vendors delivering solutions and cleanup problems being solved. Deploying innovative technologies to reduce the cost and risk, shorten the schedule of cleanup projects, or to enable cleanup, is a strategic activity supported by all EM programs. While Focus Areas are technology solution providers, EM end users are responsible for site-specific technology deployment. Focus Area and end user-developed MYPPs are "agreements" for solution delivery. Focus Area solutions are linked to specific cleanup projects and project sponsors to ensure successful implementation once the technologies are ready for deployment.

The joint planning efforts of Focus Areas and site end users ensures that highest priority needs are addressed first; urgent risks are reduced by applying state-of-the-art S&T solutions; budgets support technology development and deployment efforts; schedules line up with technology insertion points; technology transfer and commercialization assistance efforts increase the likelihood of achieving vendor availability to the EM market; and end-user programs have the needed financial resources and technical support to implement and deploy solutions.

Throughout a project's execution and implementation, Focus Areas facilitate and support deployment efforts and site acceptance of new technologies. In close coordination with end-user and vendor communities, Focus Areas:

- Ensure national technology development efforts address site-specific technical, regulatory, and institutional requirements
- Evaluate and provide information on technical performance of innovative technologies
- Report on the progress and readiness of technologies in development to ensure they meet end-user cost, schedule, and regulatory compliance needs
- Facilitate vendor availability of OST-supported technologies to the EM market
- Keep abreast of commercially available technologies and identify those that address the needs of end users
- Provide technical advice and assistance to develop site-specific deployment plans
- Provide technical support to sites on alternative technologies and their deployment
- Help technology developers to gain regulatory acceptance of new technologies
- Analyze technology cost savings and benefits, and help sites validate cost and technical performance in their site baselines
- Facilitate technology transfer among DOE sites and between DOE and industry
- Coordinate with risk programs and Centers of Excellence (COEs) across the DOE complex
- Add to the available technology base for future projects
- Facilitate the transfer of technology rights to future vendors.

3.4 Focus Area Coordination

Focus Areas are in constant contact with developers, vendors, and end users to ensure the success of the entire technology maturation process.

Focus Areas provide continuity and integration with developers, the vendor community, and end users throughout the technology maturation process. They collaborate with each EM line program at Headquarters and Field sites to jointly plan, budget, execute, and evaluate EM end-user solutions. Moreover, they work with site programs and project staff to identify cleanup needs and to develop technical responses to meet those needs. The Focus Area functions as a liaison between cleanup project managers and the scientists working on research projects. Focus Area leadership, in collaboration with end users and ongoing reviews through-

out the life cycle of a technology solution, ensures that advancements in science and new technologies are effectively integrated into end-user cleanup projects across the complex.

To effectively accomplish the wide range of complex tasks associated with the diverse EM environment, OST as a whole, and each Focus Area

in particular, relies heavily on a team-based managerial approach. Key partners on Focus Area management teams include:

End users - End users at DOE Field Offices play a crucial role in implementing OST Program activities. Within each Field Office, DOE project managers are responsible for specific projects. Site work, including technology development, demonstration, and deployment activities, is typically managed and executed through site management and integration (M&I) and management and operations (M&O) contractors. These site organizations are the problem holders and end users that OST programs are established to serve.

The customer—end users from one or more sites—is integral to and fully involved in the Focus Area.

Focus Area End-User Steering Committees - Each Focus Area has a dedicated End-User Steering Committee that ensures effective interaction and linkage of Focus Area programs with end-user needs and cleanup projects. Membership in each committee includes a limited number of senior-level OST representatives, as well as from the Office of Waste Management, the Office of Environmental Management, the Office of Nuclear Material and Facility Stability, and EM site end users with vested interests in technologies being developed for deployment by the Focus Areas. The committee develops the policies, guidance, and integration necessary to formulate and implement an effective national Focus Area program, and also is an active participant in Focus Area activities that support planning, key issue resolution, and decision-making.

Focus Area End-User Steering Committees represent the vested interests of their communities to ensure all end-user needs are met successfully.

Site Technology Coordination Groups - Focus Areas rely heavily on end users to identify, quantify, define, and validate site-specific needs. This is accomplished through each site's STCG, which ensures that site-specific needs and opportunities are identified and communicated to Focus Areas, site project managers, technology providers, other DOE sites, EM Headquarters, regulators, and stakeholders. STCG membership includes senior managers from Field end-user organizations, site contractors, and National Laboratory personnel. The STCG identifies and distributes information on site-specific needs and opportunities, transfers technology information, facilitates interaction with and among sites, and works with site personnel to demonstrate or deploy new technologies. STCG activities focus on end-user problem resolution and successful technology deployment.

STCGs are conduits through which site-specific needs and opportunities are communicated throughout the OST community.

The TPO helps Focus Area staff execute technology development projects.

Technical Program Officers - A Technical Program Officer (TPO) within each Field Office is the single point of contact for Field management of all assigned OST activities. TPOs help Focus Areas execute technology development projects. This involves task performance oversight, technical quality control, costing, and scheduling, as well as developing and obtaining site approval of project proposals and schedules, and reporting activities to OST Headquarters. Focus Areas work closely with TPOs to accomplish program planning, budget formulation, execution, and evaluation. TPOs also coordinate related efforts among other DOE Field Offices, support EM in technical and program planning activities, and ensure strong interfaces with site end-user programs.

Lead Laboratories provide a full range of scientific, engineering, and management expertise to enhance the Focus Areas' capabilities.

Lead Laboratories - Each Focus Area establishes a Lead Laboratory (e.g., a DOE National Laboratory, a DOE site management contractor, an academic institution, a private industry organization, another Federal agency laboratory, or some combination thereof) to enhance its technical and management capability. The Lead Laboratory is part of the Focus Area management team, and participates in decision-making by providing technical and management expertise. The method for integrating its technical capabilities into the Focus Area is incorporated into a Management Plan for each Focus Area. This integration ensures a strong technical foundation for interaction between Focus Areas and technology end users. Using Lead Laboratories also brings a full range of scientific, engineering, and management expertise to the Focus Areas, which enable multi-disciplinary, technically-based capabilities.

Site Team Benefits:

- ***Identification and evaluation of integration opportunities via a systematic methodology***
- ***Optimized S&T integration***
- ***Identification of strategic S&T support***
- ***More efficient use of scientific data.***

Two EM-wide elements that OST interfaces with and participates in are EM Site Teams and EM Program Area Integration Teams (PAITS). EM Site Teams span EM and comprise individuals matrixed from OST, the Office of Waste Management, the Office of Environmental Management, and the Office of Nuclear Material and Facility Stability. Site Teams address all technical and programmatic aspects of site cleanup and closure, work with Field project managers and their representatives, and have direct access to the Assistant Secretary for resolving issues affecting site ability to achieve *Paths to Closure* goals. Overall, their thrusts are to add value, complement other efforts, and serve as assets to work completion. Team representatives resolve issues and provide crosscutting and integration perspectives to site functions. Site Teams also provide EM with a specific mechanism to champion S&T programs, integrate with site end users, and identify solutions to site problems. The conceptual approach to Site Teams is outlined in a November 2, 1998 memorandum, *EM Operational Expectations*, from James M. Owendoff.

The 12 PAITs are a relatively new organizational EM structure. Their role, as described in the *Working Charter for Environmental Management Program Integration* (September 1998), is to identify and evaluate integration opportunities using a systematic methodology to recommend chosen opportunities as alternatives to baseline plans or activities. OST participants in the PAITs include Headquarters and Focus Area staff members. One of the 12 PAITs is the S&T PAIT, which provides leadership to accomplish complex-wide integration of S&T into EM projects. Specifically, the S&T PAIT:

- Optimizes the current S&T program for integrating S&T into site-specific and national EM projects
- Participates in other PAITs to identify the strategic S&T required to support integration opportunities
- Fosters better utilization of scientific knowledge within EM projects.